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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Avneesh Agrawal

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09/05/2006

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EXAMINER

DEPPE, BETSY LEE

ART UNIT

PAPER NUMBER

2611

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Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/622,663	<b>Applicant(s)</b> AGRAWAL, AVNEESH	
	<b>Examiner</b> Betsy L. Deppe	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 27 June 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5 and 19-23 is/are allowed.
- 6) ☒ Claim(s) 24-35 is/are rejected.
- 7) ☒ Claim(s) 6-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/7/06</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed June 27, 2006 have been fully considered but they are not persuasive. In response to applicant's argument on pages 12-13 that Persson et al. does not disclose orthogonal traffic channels of the base station or orthogonal FD sequences of the base station, column 3, lines 13-15 discloses a frequency hopping technique whereby "signals in the same cell hop orthogonally while being non-orthogonal relative to adjacent cell signals." Since each cell has a corresponding base station (see Persson et al., Figure 1 and column 4, lines 43-47), Persson et al. reads on the limitation.

### *Claim Objections*

2. The claims are objected to because of the following informalities:
- a. in claim 6, line 6, "at" should be inserted before "least";
  - b. in claim 6, line 7, "sequece" should be "sequence";
  - c. in claim 20, line 6, "to" should be inserted after "orthogonal";
  - d. in claim 24, line 4, "of the first base station" should be "**assigned by** the first base station" for clarification and to provide antecedent basis for "traffic channels assigned by the first base station" on line 7;
  - e. in claims 31, 33 and 35, "of the first base station" on line 4 should be "**assigned by** the first base station" for clarification and to provide antecedent

basis for "traffic channels assigned by the first base station" on line 8 of the respective claims;

f. in claim 34, line 4, "of the first base station" should be "**assigned by** the first base station" for clarification and to provide antecedent basis for "traffic channels assigned by the first base station" on lines 8-9; and

g. dependent claims are objected to under the same grounds their respective independent claims.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 24-28 and 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Persson et al. (US Patent No. 5,537,434 cited in the Office Action mailed December 27, 2005).

5. With regard to claim 24, Persson et al. discloses the claimed invention including obtaining an assignment of a traffic channel from a base station (see column 7, lines 60-67) and encoding and modulating data to obtain data symbols (see 104 and 122 in Figure 2). Persson et al. also teaches that traffic channels assigned by a first base station are orthogonal to one another but are not orthogonal to traffic channels assigned by a second base station. (See column 3, lines 5-15)

However, Persson et al. does not disclose processing the data symbols for transmission to first and second base stations. Since the mobile stations are in contact with different base stations while moving from one cell to another (see column 4, lines 43-60), it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit the data symbols to the different base stations in order to avoid losing data when handoff occurs between the base stations.

6. With regard to claims 25 and 26, Persson et al. discloses the claimed invention except for the order in which respective base station processes the received data.

Traffic channels that are non-orthogonal to the traffic channel assigned to the terminal correspond to traffic channels from different cells (see column 3, lines 13-15).

Therefore, it would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to process traffic channels within the cell before recovering the transmissions from different cells (e.g. "traffic channels that are non-orthogonal to the traffic channel assigned to the terminal correspond").

7. With regard to claim 27, Persson et al. also discloses the claimed invention including a frequency hopping communication system. (See abstract)

8. With regard to claim 28, Persson et al. discloses the claimed invention including associating a specific one of a plurality of subbands to use in each time interval. (See column 8, lines 52-56 and "both frequency and time hopping" in column 9, line 7)

9. With regard to claim 30, Persson et al. discloses the claimed invention including the first and second base stations being in different cells. (See Figure 1 and column 4, lines 44-45)

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10. With regard to claims 31 and 33, Persson et al. discloses the claimed invention including obtaining an assignment of an FH sequence from a base station (see column 7, lines 60-67) and encoding and modulating data to obtain data symbols (see 104 and 122 in Figure 2) and providing the data symbols on subbands indicated by the FH sequence (see column 7, lines 60-62). Persson et al. also teaches that FH sequences assigned by a first base station are orthogonal to one another but are not orthogonal to FH sequences assigned by a second base station. (See column 3, lines 5-15)

However, Persson et al. does not disclose processing the data symbols for transmission to first and second base stations. Since the mobile stations are in contact with different base stations while moving from one cell to another (see column 4, lines 43-60), it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit the data symbols to the different base stations in order to avoid losing data when handoff occurs between the base stations.

11. With regard to claim 32, Persson et al. also discloses that FH sequences assigned by one base station are pseudo random with respect to those assigned by another base station. (See column 3, lines 5-15)

12. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Persson et al. as applied to claim 24 above, and further in view of Menzel (US Patent No. 6,504,837 B1 cited in the Office Action mailed December 27, 2005). Persson et al. discloses the claimed invention except for the two base stations being in different sector of one cell. Since Figure 3 of Menzel teaches that one cell may have different sectors

with each sector having a base station, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Persson et al. in a system with a cell as disclosed by Menzel in order to improve synchronization in a cell with multiple base stations. Whether the base stations are in different cells or in different sectors of the same cell does not impact the functionality of Persson's system.

13. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Persson et al. in view of Brajal et al. (US Patent No. 5,548,582 cited in the Office Action mailed December 27, 2005). Figure 2 of Persson et al. discloses the claimed invention including a controller (130) (see also column 7, lines 33-37); an encoder (104); a modulator (122) and a switch (124) (see also column 7, lines 37-41). Persson et al. also teaches that traffic channels assigned by a first base station are orthogonal to one another but are not orthogonal to traffic channels assigned by a second base station. (See column 3, lines 5-15)

However, Persson et al. does not disclose an OFDM modulator operative to process the data symbols and then transmitting to the first and second base stations. Brajal et al. discloses combining frequency hopping with orthogonal frequency division multiplexing. (See abstract; column 3, lines 3-47) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Brajal et al. with that of Persson et al. in order render the system more robust to selective fading. (See Brajal et al., column 3, lines 42-47)

Persson et al. in view of Brajal et al. does not disclose processing the data symbols for transmission to first and second base stations. Since the mobile stations are in contact with different base stations while moving from one cell to another (see Persson et al., column 4, lines 43-60), it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit the data symbols to the different base stations in order to avoid losing data when handoff occurs between the base stations.

14. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Persson et al. in view of Kostic et al. (US Patent No. 6,826,409 cited in the Office Action mailed December 27, 2005). Persson et al. discloses the claimed invention including obtaining an assignment of a traffic channel from a base station (see column 7, lines 60-67) and encoding and modulating data to obtain data symbols (see 104 and 122 in Figure 2). Persson et al. also teaches that traffic channels assigned by a first base station are orthogonal to one another but are not orthogonal to traffic channels assigned by a second base station. (See column 3, lines 5-15)

However, Persson et al. does not disclose processing the data symbols for transmission to first and second base stations. Since the mobile stations are in contact with different base stations while moving from one cell to another (see column 4, lines 43-60), it would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit the data symbols to the different base stations in order to avoid losing data when handoff occurs between the base stations.



Persson et al. also does not disclose storing the instructions/steps in a processor readable media. Kostic et al. teaches storing instructions/steps in computer readable memory. (See column 11, lines 32-43) It would have been obvious to one of ordinary skill in the art at the time the invention was made to store the steps disclosed by Persson et al. in a computer readable memory in order to easily implement the method with minimal circuitry.

***Allowable Subject Matter***

15. Claims 1-5 and 19-23 are allowed.
16. Claims 6-18 are allowable if the objection to claim 6 is corrected.

***Conclusion***

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (571) 272-3054. The examiner can normally be reached on Monday, Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Betsy L. Deppe  
Primary Examiner  
Art Unit 2611